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EXAMINER
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PANNALA, SATHYANARAYAN R

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2164

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ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	Application No. 09/721,806	Applicant(s) HARVEY, RICHARD HANS	
	Examiner Sathyanarayan Pannala	Art Unit 2164	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 June 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5,9,10,14-18,22,23 and 27-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,9,10,14-18,22,23 and 27-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>attached</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/28/2007 has been entered.

### ***Response to Amendment***

2. Applicant's Amendment filed on 6/28/2007 has been entered with amended claims 1, 9-10, 14, 17-18, 22-23, and 31. In this Office Action, claims 1-5, 9-10, 14-18, 22-23 and 27-31 are pending.

### ***Information Disclosure Statement***

3. The information disclosure statement (IDS) submitted on 6/28/2007, 7/13/2007 and 8/23/2008 are in compliance with the provisions of 37 CFR 1.97 and have been considered by the examiner. The forms 1449 with initials for each item (except search report or PCT report) and dated are attached with this Office Action.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1, 9, 14, 22 and 31 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Applicant amended claims by adding the limitation "providing one or more results from the second list to a user." The specification does not support this limitation and it is burden to the examiner.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1, 9, 14, 22 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims one of the limitation is "The

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determination comprises; collecting into a first list, results, associated with one the one or more negative terms, and collecting into a second list, results associated with the one or more positive terms while omitting from the second list any results that are in the first list." The specification on page 9, line 27 to page 10, line 6 stated as **"It should be noted that a database that supports SQL may not supply subtraction operator.** In such instances a problem in processing the sum of terms as described above may arise. In order to process (or evaluate) a subtraction, the method according to the present application: collects all positive terms in a list; collects all negative terms into another list; and then subtracts the positive term list and the negative term list whilst ignoring duplicates.

8. Claims 1, 9, 14, 22 and 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The specification does not teach specifically the claiming limitation "providing one or more results from the second list to a user."

### ***Claim Rejections - 35 USC § 101***

9. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

10. Claims 1-5, 9-10, 14-18, 22-23 and 27-31 are rejected under 35 U.S.C. § 101, because none of the claims are directed to statutory subject matter. The claims lack the necessary physical articles or objects to constitute a machine or a manufacture within the meaning of 35 USC 101. They are clearly not a series of steps or acts to be a process nor are they a combination of chemical compounds to be a composition of matter. As such, they fail to fall within a statutory category. They are, at best, functional descriptive material *per se*.

Descriptive material can be characterized as either “functional descriptive material” or “nonfunctional descriptive material.” Both types of “descriptive material” are nonstatutory when claimed as descriptive material *per se*, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994).

Merely claiming nonfunctional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, does not make it statutory. See *Diehr*, 450 U.S. at 185-86, 209 USPQ at 8 (noting that the claims for an algorithm in *Benson* were unpatentable as abstract ideas because “[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer.”).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

"A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made."

12. Claims 1-5, 9-10, 14-18, 22-23 and 27-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Corn et al. (US Patent 6,356,892) Corn, in view of Lohman et al. (US Patent 6,112,198) Lohman, and in view of Krishna et al. (US Patent 5,412,804).

13. As per independent claim 1, Corn teaches a method for searching a relational database using hierarchical, filter-based queries such as LDAP (col. 2, lines 31-33). Corn teaches the claimed "evaluating the sum of terms as a plurality SQL instruction" as for each filter element, the method continues to generate SQL subquery according to a set of translation rules (Fig. 5, col. 5, lines 40-44 and col. 6, lines 41-49). Corn teaches the claimed "the sum of terms comprises one or more positive terms and one are more negative terms" as the SQL subqueries are combined into a single SQL query according to a set of combination rules chosen corresponding to the logical operators of the LDAP filter query (col. 3, lines 4-20). Corn teaches the claimed "the determination comprises: collecting, into first list, results associated with the one or more negative terms and

collecting into the second list, results associated with the one or more positive terms while omitting from the second list any results that are in the first list” as using combination rules, for example, if a pair of LDAP filter elements are subject to an LDAP logical NOT operator, the corresponding entry ID (EID) sets are **merged** using an SQL NOT IN logical operator. Similarly, if a pair of LDAP filter elements are subject to LDAP logical AND operator the corresponding EID sets are **merged** using an SQL INTERSECT logical operator. (Fig. 5, col. 7, lines 39-57). Corn teaches the claimed “

Corn does not explicitly teach omitting elements. Lohman teaches the claimed, “omitting from the second list any results that are in the first list” as duplicate elimination (it is similar to comparing and eliminating elements from the second list with respect to elements in the first list when they are same in both) (col. 5, lines 30-33). Lohman teaches the claimed “determining a plurality of results associated with the sum of terms” as the given query is broken up into subtasks and all the subtasks are executed in parallel by the processors (Fig. 6A, col. 8, lines 1-3). Corn does not explicitly teach receiving a service query. However, Lohman teaches the claimed, receiving a service query” as a given query (col. 2, lines 47-48). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combine the teachings of the cited references because Lohman’s teachings would have allowed Corn’s method for optimization by executing subqueries on data partitions (col. 1, lines 26-27).

Corn and Lohman do not explicitly teach expanding nested terms into un-nested terms and presenting results to a user. However, Krishna teaches “obtaining a sum of



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terms associated with the service query by expanding at least one nested term into one or more un-nested terms” as the alternate method of un-nesting a nested query having a count aggregate (Fig. 12, col. 14, lines 60-61). Krishna teaches “providing one or more results from the second list to a user” (Fig. 1, col. 4, lines 51-54). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to combine the teachings of the cited references because Krishna’s teachings would have allowed Corn’s method to find a better order of execution by the optimizer for evaluating the un-nested query blocks (col. 2, lines 49-51).

14. As per dependent claim 2, Corn teaches the claimed “expanding each term to remove NOT operators” as if a pair of LDAP filer elements are subject to an LDAP logical operator, the corresponding EID sets are merged using an SQL NOT IN logical operator (Fig. 5, col. 7, lines 50-52).

15. As per dependent claim 3, Corn teaches the claimed “a sum of terms are expanded using Boolean logic” as complex search filters are generated by combining basic filters with Boolean operators (col. 7, lines 3-4).

16. As per dependent claim 4, Corn teaches the claimed “the service query is an X.500 or LDAP service query” as the invention provides hierarchical LDAP searching in an LDAP directory service having a relational database management as a backing store (Fig. 5, col. 5, lines 33-37).

17. As per independent claim 9, Corn teaches a method for searching a relational database using hierarchical, filter-based queries such as LDAP (col. 2, lines 31-33). Corn teaches the claimed "a database operable to store arbitrary data" as the invention provides hierarchical LDAP searches using relational tables in the LDAP directory service having a relational database management system as backing store (col. 2, lines 60-63). Corn teaches the claimed "a processor that is communicatively coupled to the database and is operable to process a service query" as the method begins at step 60 by parsing an LDAP filter-based query for elements and logical operators for the filter query (Fig. 5, col. 5, lines 37-40). Further, Corn teaches the claimed "evaluating the sum of terms of SQL instructions" as for each filter element, the method continues to generate SQL subquery according to a set of translation rules (Fig. 5, col. 5, lines 40-44 and col. 6, lines 5-7). Corn teaches the claimed "the sum of terms comprises one or more positive terms and one are more negative terms" as the SQL subqueries are combined into a single SQL query according to a set of combination rules chosen corresponding to the logical operators of the LDAP filter query (col. 3, lines 4-20).

Further, Corn teaches the claimed "determining a plurality of results associated with the sum of terms" as the given query is broken up into subtasks and all the subtasks are executed in parallel by the processors (Fig. 6A, col. 8, lines 1-3). Corn teaches the claimed "the determination comprises: collecting, into first list, results associated with the one or more negative terms and collecting into the second list, results associated with the one or more positive terms and collecting into the second

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list” as using combination rules, for example, if a pair of LDAP filter elements are subject to an LDAP logical NOT operator, the corresponding entry ID (EID) sets are **merged** using an SQL NOT IN logical operator. Similarly, if a pair of LDAP filter elements are subject to LDAP logical AND operator the corresponding EID sets are **merged** using an SQL INTERSECT logical operator (Fig. 5, col. 7, lines 39-57). Corn does not explicitly teach omitting elements. Lohman teaches the claimed, “omitting from the second list any results that are in the first list” as duplicate elimination (it is similar to comparing and eliminating elements from the second list with respect to elements in the first list when they are same in both) (col. 5, lines 30-33). Thus, it would have been obvious to one ordinarily skilled in the art of data processing at the time of the invention, to combine teaching of the cited references because Lohman’s teachings would have allowed Corn’s method for optimization by executing subqueries on data partitions (col. 1, lines 26-27).

Corn and Lohman do not explicitly teach expanding nested terms into un-nested terms and presenting result to a user. However, Krishna teaches “obtaining a sum of terms by expanding at least one nested term into one or more un-nested terms” as the alternate method of un-nesting a nested query having a count aggregate (Fig. 12, col. 14, lines 60-61). Krishna teaches “providing one or more results from the second list to a user” (Fig. 1, col. 4, lines 51-54). Thus, it would have been obvious to one ordinarily skilled in the art of data processing at the time of the invention, to combine teaching of the cited references because Krishna’s teachings would have allowed

Corn's method to find a better order of execution by the optimizer for evaluating the un-nested query blocks (col. 2, lines 49-51).

18. As per dependent claim 10, Corn teaches the claimed "the directory service arrangement including means to perform X.500 or LDAP services" as the invention provides hierarchical LDAP searching in an LDAP directory service having a relational database management as a backing store (Fig. 5, col. 5, lines 33-37).

19. As per independent claim 14, Corn teaches a method for searching a relational database using hierarchical, filter-based queries such as LDAP (col. 2, lines 31-33). Corn teaches the claimed "mapping the sum of terms to a plurality of SQL instructions" as to provide a method for mapping LDAP search queries into an SQL query (col. 2, lines 51-54). Further, Corn teaches the claimed "determining a plurality of results associated with the sum of terms" as the given query is broken up into subtasks and all the subtasks are executed in parallel by the processors (Fig. 6A, col. 8, lines 1-3). Corn teaches the claimed "the sum of terms comprises one or more positive terms and one or more negative terms" as the SQL subqueries are combined into a single SQL query according to a set of combination rules chosen corresponding to the logical operators of the LDAP filter query (col. 3, lines 4-20). Corn teaches the claimed "the determination comprises: collecting, into first list, results associated with the one or more negative terms and collecting into the second list, results associated with the one or more positive terms and collecting into the second list" as using combination rules, for

example, if a pair of LDAP filter elements are subject to an LDAP logical NOT operator, the corresponding entry ID (EID) sets are **merged** using an SQL NOT IN logical operator. Similarly, if a pair of LDAP filter elements are subject to LDAP logical AND operator the corresponding EID sets are **merged** using an SQL INTERSECT logical operator (Fig. 5, col. 7, lines 39-57). Corn does not explicitly teach omitting elements. Lohman teaches the claimed, "omitting from the second list any results that are in the first list" as duplicate elimination (it is similar to comparing and eliminating elements from the second list with respect to elements in the first list when they are same in both) (col. 5, lines 30-33). Further, Corn does not explicitly teach receiving a service query. However, Lohman teaches the claimed "receiving a directory service query" as a given query (col. 2, lines 47). Thus, it would have been obvious to one ordinarily skilled in the art of data processing at the time of the invention, to combine teaching of the cited references because Lohman's teachings would have allowed Corn's method for optimization by executing subqueries on data partitions (col. 1, lines 26-27).

Corn and Lohman do not explicitly teach expanding nested terms into un-nested terms and presenting results to a user. However, Krishna teaches "obtaining a sum of terms by expanding at least one nested term into one or more un-nested terms" as the alternate method of un-nesting a nested query having a count aggregate (Fig. 12, col. 14, lines 60-61). Krishna teaches "providing one or more results from the second list to a user" (Fig. 1, col. 4, lines 51-54). Thus, it would have been obvious to one ordinarily skilled in the art of data processing at the time of the invention, to combine teaching of the cited references because Krishna's teachings would have allowed Corn's method to

find a better order of execution by the optimizer for evaluating the un-nested query blocks (col. 2, lines 49-51).

20. As per dependent claim 15, Corn teaches the claimed “expanding each term to remove NOT operators” as if a pair of LDAP filter elements are subject to an LDAP logical operator, the corresponding EID sets are merged using an SQL NOT IN logical operator (Fig. 5, col. 7, lines 50-52).

21. As per dependent claim 16, Corn teaches the claimed “the sum of terms are expanded using Boolean logic” as complex search filters are generated by combining basic filters with Boolean operators (col. 7, lines 3-4).

22. As per dependent claim 17, Corn teaches the claimed “the service query is an X.500 or LDAP service query” as the invention provides hierarchical LDAP searching in an LDAP directory service having a relational database management as a backing store (Fig. 5, col. 5, lines 33-37).

23. As per dependent claim 18, Corn teaches the claimed “the service query is a search service query” as LDAP provides the capability for directory information to be efficiently queried and it offers a rich set of searching capabilities with which users can put together complex queries to get desired information from a backing store (col. 1, line 65 to col. 2, line 2).

24. As per independent claim 22, Corn teaches a method for searching a relational database using hierarchical, filter-based queries such as LDAP (col. 2, lines 31-33). Corn teaches the claimed "a database using a plurality of tables, each table having a plurality of rows and columns, and storing arbitrary data" as the invention provides hierarchical LDAP searches using relational tables in the LDAP directory service having a relational database management system as backing store (col. 2, lines 60-63). Further, Corn teaches the claimed "processing a directory service query" as the method begins at step 60 by parsing an LDAP filter-based query for elements and logical operators for the filter query (Fig. 5, col. 5, lines 37-40). Further, Corn teaches the claimed "mapping the sum of terms to a plurality of to SQL instructions" as to provide a method for mapping LDAP search queries into an SQL query (col. 2, lines 51-54). Further, Corn teaches the claimed "determining a plurality of results associated with the sum of terms" as the given query is broken up into subtasks and all the subtasks are executed in parallel by the processors (Fig. 6A, col. 8, lines 1-3). Corn teaches the claimed "the sum of terms comprises one or more positive terms and one are more negative terms" as the SQL subqueries are combined into a single SQL query according to a set of combination rules chosen corresponding to the logical operators of the LDAP filter query (col. 3, lines 4-20).

Corn teaches the claimed "the determination comprises: collecting, into first list, results associated with the one or more negative terms and collecting into the second list, results associated with the one or more positive terms and collecting into the

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second list” as using combination rules, for example, if a pair of LDAP filter elements are subject to an LDAP logical NOT operator, the corresponding entry ID (EID) sets are **merged** using an SQL NOT IN logical operator. Similarly, if a pair of LDAP filter elements are subject to LDAP logical AND operator the corresponding EID sets are **merged** using an SQL INTERSECT logical operator (Fig. 5, col. 7, lines 39-57). Corn does not explicitly teach omitting elements. Lohman teaches the claimed, “while omitting from the second list any results that are in the first list” as duplicate elimination (it is similar to comparing and eliminating elements from the second list with respect to elements in the first list when they are same in both) (col. 5, lines 30-33). Thus, it would have been obvious to one ordinarily skilled in the art of data processing at the time of the invention, to combine teaching of the cited references because Lohman’s teachings would have allowed Corn’s method for optimization by executing subqueries on data partitions (col. 1, lines 26-27).

Corn and Lohman do not explicitly teach expanding nested terms into un-nested terms and providing results to a user. However, Krishna teaches “obtaining a sum of terms by expanding at least one nested term into one or more un-nested terms” as the alternate method of un-nesting a nested query having a count aggregate (Fig. 12, col. 14, lines 60-61). Krishna teaches “providing one or more results from the second list to a user” (Fig. 1, col. 4, lines 51-54). Thus, it would have been obvious to one ordinarily skilled in the art of data processing at the time of the invention, to combine teaching of the cited references because Krishna’s teachings would have allowed



Corn's method to find a better order of execution by the optimizer for evaluating the un-nested query blocks (col. 2, lines 49-51).

25. As per dependent claim 23, Corn teaches the claimed "The directory service arrangement comprising means to perform X.500 or LDAP services" as the invention provides hierarchical LDAP searching in an LDAP directory service having a relational database management as a backing store (Fig. 5, col. 5, lines 33-37).

26. As per dependent claims 27, Corn teaches the claimed, "evaluating the sum of terms comprises converting the sum of terms to a plurality of SQL instructions comprising at least one negative term and subtracting at least one result associated with the at least one negative term" as NOT is excludes entries by negating the IN operation before subquery (col. 3, lines 14-20).

27. As per dependent claims 28, Corn teaches the claimed "identifying at least one term associated with at least one NOT operator and expanding the at least one term associated with the at least one NOT operator into at least one negative term " as NOT is excludes entries by negating the IN operation before sub-query (col. 3, lines 14-20).

28. As per dependent claims 29, "if the service query comprises a term having at least two NOT operators, deleting or discarding from the sum of terms a third order term

having at least two NOT operators" as NOT is excludes entries by negating the IN operation before sub-query (col. 3, lines 14-20).

29. As per dependent claims 30, Corn teaches the claimed "identifying at least one term associated with at least one NOT operator and expanding the at least one term associated with the at least one NOT operator into at least one positive term (Fig. 6A, col. 7, line 66 to col. 8, line 8).

30. As per independent claims 31, Corn teaches a method for searching a relational database using hierarchical, filter-based queries such as LDAP (col. 2, lines 31-33). Corn teaches the claimed "evaluating the sum of terms as a plurality SQL instructions" as for each filter element, the method continues to generate SQL subquery according to a set of translation rules (Fig. 5, col. 5, lines 40-44 and col. 6, lines 41-49). Corn teaches the claimed "expanding at least one term associated with at least one NOT operator into at least one negative term and at least one positive term" as the SQL subqueries are combined into a single SQL query according to a set of combination rules chosen corresponding to the logical operators of the LDAP filter query (col. 3, lines 4-20). Further, Corn teaches the claimed, generating a first list comprising one or more results associated with the at least one negative term, generating a second list comprising one or more results associated with the at least one positive term and removing or omitting from the second list one or more results associated with the at least one negative term" (Fig. 6A, col. 3, lines 14-20 and col. 7, line 66 to col. 8, line 8).

Corn teaches the claimed, "if the service query comprises a term having at least two NOT operators, deleting from the sum of terms a third-order term corresponding to the term" as when NOT logical operator is present, at step 94 it generates a NOT IN operator to the SQL expression (Fig. 6B, col. 8, lines 40-51).

Corn does not explicitly teach receiving a service query. However, Lohman teaches the claimed, receiving a service query" as a given query (col. 2, lines 47-48). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combine the teachings of the cited references because Lohman's teachings would have allowed Corn's method for optimization by executing subqueries on data partitions (col. 1, lines 26-27).

Corn and Lohman do not explicitly teach expanding nested terms into un-nested terms and presenting results to a user. However, Krishna teaches "obtaining a sum of terms associated with the service query by expanding at least one nested term into one or more un-nested terms" as the alternate method of un-nesting a nested query having a count aggregate (Fig. 12, col. 14, lines 60-61). Krishna teaches "providing one or more results from the second list to a user" (Fig. 1, col. 4, lines 51-54). Thus, it would have been obvious to one of ordinary skill in the data processing art at the time of the invention, to have combine the teachings of the cited references because Krishna's teachings would have allowed Corn's method to find a better order of execution by the optimizer for evaluating the un-nested query blocks (col. 2, lines 49-51). Krishna teaches the claimed "obtaining a plurality of results wherein each term of the sum of terms is associated with one or more results" as when query blocks are pipelined, the

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result of a first query block is specified as input to the predicate of a second query block, but that result is presumed to be evaluated only once before evaluation of the second query block (col. 2, lines 39-43).

### **Response to Arguments**

31. Applicant's arguments filed on 8/25/2006 have been fully considered but they are not persuasive and details are as follows:

- a) Applicant's argument regarding response to rejection under 35 U.S.C. 112, 2<sup>nd</sup>, paragraph stated as "Notably, these claims make no mention of subtraction or of a subtraction operator" (see page 11, paragraph second).

In response to Applicant's argument, Examiner respectfully disagrees, because negative terms deals with subtraction.

- b) Applicant's argument regarding response to rejection under 35 U.S.C. 101 stated as "Applicant respectfully disagrees."

In response to Applicant's argument, Examiner respectfully disagrees, because the claims without presentation of results to a user are considered as steps of a program. The amended claims do not support the specification and therefore the rejection still valid.

- c) Applicant's argument regarding response to rejection of claims under 35 U.S.C. 103 stated as "Corn-Lohman combination is improper".

In response to Applicant's argument, Examiner respectfully disagrees, because the purpose of adding the second reference, Lohman, is to teach the limitations claims, which are not disclosed by the primary reference, Corn. Examiner, did not expect to teach each and every limitation of a claim by both references. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

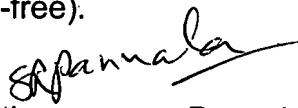
**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sathyanarayan Pannala whose telephone number is (571) 272-4115. The examiner can normally be reached on 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Rones can be reached on (571) 272-4085. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sathyanarayan Pannala  
Primary Examiner

srp  
August 30, 2007